Biotechnology and Bioengineering

Author Index to Volume 48

Allen, D. G. See Mohseni, M., 257
Anand, S.
—; Wu, J.-H.; Diamond, S. L.: Enzyme-Mediated Proteolysis of Fibrous Biopolymers: Dissolution Front Movement in Fibrin or Collagen Under Conditions of Diffusive or Convective Transport, 89
Anis, M. See Das, K., 551
Arnold, F. H. See Sundaresan, V., 431
—; See Johnson, R. D., 437
Asai, S. See Konishi, Y., 592
Asenjo, J. A. See Kaul, A., 246
Azemi, B. M. N. M. See Das, K., 551

Baines, A. J. See Hooker, A. D., 639
Banik, G. G.
—; Heath, C. A.: Hybridoma Growth and Antibody Production as a Function of Cell Density and Specific Growth Rate in Perfusion Culture, 289
Bayne, S. See Mollerup, I., 501
Belfort, G. See Mallubhotla, H., 375
Betenbaugh, M. J. See Tsai, A. M., 715
Beuvery, E. C. See Martens, D. E., 49
Bhalerao, N. See Gu, T., 520
Blackie, J. D. See Ozturk, S. S., 201
Boor, R. See Carlson, A., 303
Boraschi, D. See Maurizi, G., 197
Borchardt, R. T. See Li, S., 490
Bossù, P. See Maurizi, G., 197
Bowen, W. R.
—; Moran, E. B.: Ion Exchange of Amino Acids at a Natural Organic Ion Exchanger: Thermodynamics and Energetics, 559
Buckland, B. See Lee, S. S., 386
Buffière, P.
—; Stever, J.-P.; Fonade, C.; Moletta, R.: Comprehensive Modeling of Methanogenic Biofilms in Fluidized Bed Systems: Mass Transfer Limitations and Multisubstrate Aspects, 725
Bujalski, W. See Priede, M. A., 266
Bull, A. T. See Hooker, A. D., 639
Bulstra, D. J. See Smolders, G. J. F., 234
Burns, M. A. See Evans, L. L., 461
Burt, A. See Lee, S. S., 386

Calandranis, J. See Petrides, D., 529
Carlson, A.
—; Signs, M.; Liermann, L.; Boor, R.; Jem, K. J.: Mechanical Disruption of *Escherichia coli* for Plasmid Recovery, 303
Carpenter, J. F. See Manning, M. C., 506
Carta, G. See Zaidi, A., 601
Chalmers, J. J. See Chattopadhyay, D., 649
Chang, Q.-L.
—; Chen, J.-Y.: Purification of Industrial α-amylase by Reversed Micellar Extraction, 745
Chang, T. M. S. See Lloyd-George, I., 706
Chang, Y.-H. D.
—; Grodzinsky, A. J.; Wang, D. I C.: Augmentation of Mass Transfer Through Electrical Means for Hydrogel-Entrapped *Escherichia coli* Cultivation, 149
Chang, Y. K.
—; McCreath, G. E.; Chase, H. A.: Development of an Expanded Bed Technique for an Affinity Purification of G6PDH from Unclarified Yeast Cell Homogenates, 355
Charcosset, C.
—; Su, Z.; Karoor, S.; Daun, G.; Colton, C. K.: Protein A Immunoaffinity Hollow Fiber Membranes for Immunoglobulin G Purification: Experimental Characterization, 415
Chase, H. A. See McCreath, G. E., 341
—; See Chang, Y. K., 355
Chattopadhyay, D.
—; Rathman, J. F.; Chalmers, J. J.: Thermodynamic Approach to Explain Cell Adhesion to Air–Medium Interfaces, 649
Chen, C.-I.
—; Taylor, R. T.: Thermophilic Biodegradation of BTEX by Two *Thermus* Species, 614
Chen, J.-Y. See Chang, Q.-L., 745
Chen, W. Y. See Gu, T., 520
Cheng, C. H. K. See Kwok, F., 542
Clonis, Y. D. See Labrou, N. E., 278
Colton, C. K. See Charcosset, C., 415
Cramer, S. M. See Kundu, A., 452
Crecchio, C.
—; Ruggiero, P.; Pizzigallo, M. D. R.: Polyphenoloxidases Immobilized in Organic Gels: Properties and Applications in the Detoxification of Aromatic Compounds, 585
Crooks, G. E.
—; Rees, G. D.; Robinson, B. H.; Svensson, M.; Stephenson, G. R.: Comparison of Hydrolysis and Esterification Behavior of *Humicola lanuginosa* and *Rhizomucor miehei* Lipases in AOT-Stabilized Water-in-Oil Microemulsions: I. Effect of pH and Water Content on Reaction Kinetics, 78
—; Rees, G. D.; Robinson, B. H.; Svensson, M.; Stephenson, G. R.: Comparison of Hydrolysis and Esterification Behavior of *Humicola lanuginosa* and *Rhizomucor miehei* Lipases in AOT-Stabilized Water-in-Oil Microemulsions: II. Effect of Temperature on Reaction Kinetics and General Considerations of Stability and Productivity, 190

Das, K.
—; Anis, M.; Azemi, B. M. N. M.; Ismail, N.: Fermentation and Recovery of Glutamic Acid from Palm Waste Hydrolysate by Ion-Exchange Resin Column, 551
Daun, G. See Charcosset, C., 415
de Gooijer, C. D. See Martens, D. E., 49
del Río, G.
—; Rodríguez, M.-E.; Munguía, M.-E.; López-Munguía, A.; Soberón, X.: Mutant *Escherichia coli* Penicillin Acylase with Enhanced Stability at Alkaline pH, 141
Dhal, P. K. See Sundaresan, V., 431
Diamond, S. L. See Anand, S., 89
Dormish, J. J. See Manning, M. C., 506
Ducret, A.
—; Giroux, A.; Trani, M.; Lortie, R.: Enzymatic Preparation of Biosurfactants from Sugars or Sugar Alcohols and Fatty Acids in Organic Media Under Reduced pressure, 214
Duine, J. A. See van Tol, J. B. A., 179

Evans, L. L.
—; Burns, M. A.: Countercurrent Gradient Chromatography: A Continuous Focusing Technique, 461

Fagervik, K. See von Schalien, R., 631
Fane, A. G. See Liew, M. K. H., 108
Fiers, W. See Steidler, L., 667
Fonade, C. See Buffière, P., 725
Fréchet, J. M. J. See Svec, F., 476
French, A. D. See Weimer, P. J., 169

Gainer, J. L. See Zaidi, A., 601
Gao, J. See Skeen, R. S., 659
Geladé, E. F. T. See van Tol, J. B. A., 179
Giroux, A. See Ducret, A., 214
Goldman, M. H. See Hooker, A. D., 639
Gordillo, M. A. See Montesinos, J. L., 573
Grodzinsky, A. J. See Chang, Y.-H. D., 149
Gu, T.
—; Zheng, Y.; Gu, Y.; Haldankar, R.; Bhalerao, N.; Ridgway, D.; Wiehl, P. E.; Chen, W. Y.; Kopchick, J. J.: Purification of a Pyrogen-Free Human Growth Hormone Antagonist, 520
Gu, Y. See Gu, T., 520

Hackney, J. M. See Weimer, P. J., 169
Haldankar, R. See Gu, T., 520

Halkjær, E. See Mollerup, I., 501
Hampel, W. A. See Schuster, K. C., 66
Hanson, R. L. See Nanduri, V. B., 547
Haynes, C. A.
—; Sherwood, C. S.; Turner, R. F. B.: Characterization of an Oligonucleotide-Binding Fluorescent Ligand for Application in Affinity Purification of dsDNA, 25
Heath, C. A. See Banik, G. G., 289
Heijnen, J. J. See Smolders, G. J. F., 222
—; See Smolders, G. J. F., 234
—; See van Gulik, W. M., 681
Hooker, A. D.
—; Goldman, M. H.; Markham, N. H.; James, D. C.; Ison, A. P.; Bull, A. T.; Strange, P. G.; Salmon, I.; Baines, A. J.; Jenkins, N.: *N*-Glycans of Recombinant Human Interferon-γ Change During Batch Culture of Chinese Hamster Ovary Cells, 639
Hooker, B. S. See Skeen, R. S., 659
Hsiun, D.-Y. See Jong, J.-Z., 207
Hutchinson, C. R. See Scotti, C., 133

Imai, M. See Naoe, K., 333
Imamura, Y. See Omasa, T., 673
Inampudi, P. See Lombardo, S., 513
Inoue, Y. See Ohtani, N., 42
Ismail, N. See Das, K., 551
Ison, A. P. See Hooker, A. D., 639
Itoh, Y.
—; Ueda, H.; Suzuki, E.: Overexpression of bcl-2, Apoptosis Suppressing Gene: Prolonged Viable Culture Period of Hybridoma and Enhanced Antibody Production, 118
Iyer, H. V.
—; Przybycien, T. M.: Metal Affinity Protein Precipitation: Effects of Mixing, Protein Concentration, and Modifiers on Protein Fractionation, 324

Jacobs, R. See Smolders, G. J. F., 234
James, D. C. See Hooker, A. D., 639
Jayaraman, G. See Kundu, A., 452
Jem, K. J. See Carlson, A., 303
Jenkins, N. See Hooker, A. D., 639
Johns, M. R. See Judge, R. A., 316
Johnson, R. D.
—; Arnold, F. H.: Multipoint Binding and Heterogeneity in Immobilized Metal Affinity Chromatography, 437
Jong, J.-Z.
—; Hsiun, D.-Y.; Wu, W.-T.; Tzeng, Y.-M.: Fed-batch Culture of *Bacillus thuringiensis* for Thuringiensin Production in a Tower Type Bioreactor, 207
Jongejan, J. A. See van Tol, J. B. A., 179
Jördening, H.-J. See Walter, J., 12
Jørgensen, T. See Mollerup, I., 501
Judge, R. A.
—; Johns, M. R.; White, E. T.: Protein Purification by Bulk Crystallization: The Recovery of Ovalbumin, 316
Jung, K.-H.
—; Lee, J.-Y.; Kim, H.-S.: Biodegradation of Nitrobenzene through a Hybrid Pathway in *Pseudomonas putida*, 625

Kamphuis, J. See van Tol, J. B. A., 179
Karagouni, A. See Labrou, N. E., 278
Karau, A. See Thömmes, J., 367
Karoor, S. See Charcosset, C., 415
Kaul, A.
—; Pereira, R. A. M.; Asenjo, J. A.; Merchuk, J. C.: Kinetics of Phase Separation for Polyethylene Glycol–Phosphate Two-Phase Systems, 246
Kawagoe, M. See Naoe, K., 333
Kendrick, B. S. See Manning, M. C., 506
Kierkels, H. G. T. See van Tol, J. B. A., 179
Kieweg, R. See Schuster, K. C., 66
Kim, H.-S. See Jung, K.-H., 625
Kitani, Y. See Omasa, T., 673
Klop, J. M. See Smolders, G. J. F., 222
Ko, R. Y. See Nanduri, V. B., 547
Kobayashi, A. See Ohtani, N., 42
Kobayashi, F. See Sawada, T., 719
Kobayashi, K.-y. See Yamazaki, M., 17
Kobayashi, M. See Omasa, T., 673
Konishi, Y.
—; Yoshida, S.; Asai, S.: Bioleaching of Pyrite by Acidophilic Thermophile *Acidianus brierleyi*, 592
Kopchick, J. J. See Gu, T., 520
Kula, M.-R. See Thömmes, J., 367
Kundu, A.
—; Vunnum, S.; Jayaraman, G.; Cramer, S. M.: Protected Amino Acids As Novel Low-Molecular-Weight Displacers in Cation-Exchange Displacement Chromatography, 452
Kuwahara, M. See Sawada, T., 719
Kwok, F.
—; Wang, X. H.; Cheng, C. H. K.; Lo, S. C. L.: Large Scale Purification of *myo*-Inositol Monophosphate Phosphatase From Porcine Brains, 542

Labrou, N. E.
—; Karagouni, A.; Clonis, Y. D.: Biomimetic-Dye Affinity Adsorbents for Enzyme Purification: Application to the One-Step Purification of *Candida boidinii* Formate Dehydrogenase, 278
Lafuente, J. See Montesinos, J. L., 573
Langer, R. See Shefer, S. D., 36
LaPorte, T. L. See Nanduri, V. B., 547
Lee, G. M. See Park, S. Y., 699
Lee, J.-Y. See Jung, K.-H., 625
Lee, S. S.
—; Burt, A.; Russotti, G.; Buckland, B.: Microfiltration of Recombinant Yeast Cells Using a Rotating Disk Dynamic Filtration System, 386
Lewandowski, Z. See Yang, S., 737
Li, S.
—; Schöneich, C.; Borchardt, R. T.: Chemical Instability of Protein Pharmaceuticals: Mechanisms of Oxidation and Strategies for Stabilization, 490
Liermann, L. See Carlson, A., 303
Liew, M. K. H.
—; Fane, A. G.; Rogers, P. L.: Hydraulic Resistance and Fouling of Microfilters by *Candida utilis* in Fermentation Broth, 108
Linden, J. C. See Mirjalili, N., 123
Lloyd-George, I.
—; Chang, T. M. S.: Characterization of Free and Alginate–Polylysine–Alginate Microencapsulated *Erwinia herbicola* for the Conversion of Ammonia, Pyruvate, and Phenol into L-Tyrosine, 706
Lo, S. C. L. See Kwok, F., 542
Lombardo, S.
—; Inampudi, P.; Scotton, A.; Ruezinsky, G.; Rupp, R.; Nigam, S.: Development of Surface Swabbing Procedures for a Cleaning Validation Program in a Biopharmaceutical Manufacturing Facility, 513
López-Munguía, A. See del Río, G., 141
Lortie, R. See Ducret, A., 214
Louvel, L. See Vanhoutte, B., 1
Lowe, C. R. See McCreath, G. E., 341

Mallubhotla, H.
—; Nunes, E.; Belfort, G.: Microfiltration of Yeast Suspensions With Self-Cleaning Spiral Vortices: Possibilities for a New Membrane Module Design, 375
Mandrap, G. See Mollerup, I., 501
Manning, M. C.
—; Matsuura, J. E.; Kendrick, B. S.; Meyer, J. D.; Dormish, J. J.; Vrkljan, M.; Ruth, J. R.; Carpenter, J. F.; Shefter, E.: Approaches for Increasing the Solution Stability of Proteins, 506
Markham, N. H. See Hooker, A. D., 639
Martens, D. E.
—; Sipkema, E. M.; de Gooijer, C. D.; Beuvery, E. C.; Tramper, J.: A Combined Cell-Cycle and Metabolic Model for the Growth of Hybridoma Cells in Steady-State Continuous Culture, 49
Matsuura, J. E. See Manning, M. C., 506
Maurizi, G.
—; Bossù, P.; Boraschi, D.; Ulisse, E.; Tagliabue, A.; Ruggiero, P.: Sporulation: An Alternative Way to Recover Recombinant Proteins from *Bacillus subtilis*, 197
Mawatari, Y. See Naoe, K., 333
Mayer, H. F. See Schuster, K. C., 66
McCreath, G. E.
—; Chase, H. A.; Owen, R. O.; Lowe, C. R.: Expanded Bed Affinity Chromatography of Dehydrogenases from Bakers' Yeast Using Dye–Ligand Perfluoropolymer Supports, 341
—; See Chang, Y. K., 355
Merchuk, J. C. See Kaul, A., 246
Meyer, J. D. See Manning, M. C., 506
Mirjalili, N.
—; Linden, J. C.: Gas Phase Composition

Effects on Suspension Cultures of *Taxus cuspidata*, 123
Mohseni, M.
—; Allen, D. G.: The Effect of Particle Morphology and Concentration on the Directly Measured Yield Stress in Filamentous Suspensions, 257
Moletta, R. See Buffière, P., 725
Mollerup, I.
—; Bayne, S.; Halkjær, E.; Jørgensen, T.; Mandrup, G.; Nicolaisen, E. M.; Thim, L.: The Use of RP-HPLC for Measuring Activation and Cleavage of rFVIIa During Purification, 501
Montesinos, J. L.
—; Lafuente, J.; Gordillo, M. A.; Valero, F.; Solà, C.: Structured Modeling and State Estimation in a Fermentation Process: Lipase Production by *Candida rugosa*, 573
Moran, E. B. See Bowen, W. R., 559
Mori, Y. See Yamazaki, M., 17
Mosterd, F. See van Tol, J. B. A., 179
Mukhopadhyay, A.
—; Mukhopadhyay, S. N.; Talwar, G. P.: Studies on the Synthesis of βhCG Hormone in Vero Cells by Recombinant Vaccinia Virus, 158
Mukhopadhyay, S. N. See Mukhopadhyay, A., 158
Munguía, M.-E. See del Río, G., 141

Nakamura, Y. See Sawada, T., 719
Nanduri, V. B.
—; Hanson, R. L.; LaPorte, T. L.; Ko, R. Y.; Patel, R. N.; Szarka, L. J.: Fermentation and Isolation of C10-Deacetylase for the Production of 10-Deacetylbaccatin III from Baccatin III, 547
Naoe, K.
—; Shintaku, Y.; Mawatari, Y.; Kawagoe, M.; Imai, M.: Novel Function of Guanidine Hydrochloride in Reverse Micellar Extraction of Lysozyme from Chicken Egg White, 333
Naveh, D. See Ozturk, S. S., 201
Nicolaisen, E. M. See Mollerup, I., 501
Nigam, S. See Lombardo, S., 513
Nishikawa, T. See Omasa, T., 673
Nunes, E. See Mallubhotla, H., 375

Ohtani, N.
—; Inoue, Y.; Kobayashi, A.; Sugawara, T.: Transesterification Catalyzed by Polystyrene-Supported Chymotrypsin in Toluene: The Effect of Neutralization of Basic or Acidic Groups Attaching to Polystyrene Resins, 42
Omasa, T.
—; Kobayashi, M.; Nishikawa, T.; Shioya, S.; Suga, K.-i.; Uemura, S.-i.; Kitani, Y.; Imamura, Y.: Enhancement of Antibody Production by Growth Factor Addition in Perfusion and Hollow-Fiber Culture Systems, 673
Owen, R. O. See McCreath, G. E., 341
Ozturk, S. S.
—; Thrift, J. C.; Blackie, J. D.; Naveh, D.: Real-Time Monitoring of Protein Secretion in Mammalian Cell Fermentation: Measurement of Monoclonal Antibodies Using a Computer-Controlled HPLC System (BioCad/RPM), 201

Park, S. Y.
—; Lee, G. M.: Enhancement of Monoclonal Antibody Production by Immobilized Hybridoma Cell Culture with Hyperosmolar Medium, 699
Patel, R. N. See Nanduri, V. B., 547
Pereira, R. A. M. See Kaul, A., 246
Petrides, D.
—; Sapidou, E.; Calandranis, J.: Computer-Aided Process Analysis and Economic Evaluation for Biosynthetic Human Insulin Production–A Case Study, 529
Pizzigallo, M. D. R. See Crecchio, C., 585
Plunkett, S. D. See Sundaresan, V., 431
Pons, M. N. See Vanhoutte, B., 1
Priede, M. A.
—; Vanags, J. J.; Viesturs, U. E.; Tucker, K. G.; Bujalski, W.; Thomas, C. R.: Hydrodynamic, Physiological, and Morphological Characteristics of *Fusarium moniliforme* in Geometrically Dissimilar Stirred Bioreactors, 266
Przybycien, T. M. See Iyer, H. V., 324

Rathman, J. F. See Chattopadhyay, D., 649
Rees, G. D. See Crooks, G. E., 78
—; See Crooks, G. E., 190
Remaut, E. See Steidler, L., 667
Ridgway, D. See Gu, T., 520
Ringbom, K. See von Schalien, R., 631
Robinson, B. H. See Crooks, G. E., 78
—; See Crooks, G. E., 190
Rodríguez, M.-E. See del Río, G., 141
Rogers, P. L. See Liew, M. K. H., 108
Rosenberger, V. See Shefer, S. D., 36
Ruezinsky, G. See Lombardo, S., 513
Ruggiero, P. See Maurizi, G., 197
—; See Crecchio, C., 585
Rupp, R. See Lombardo, S., 513
Russotti, G. See Lee, S. S., 386
Ruth, J. R. See Manning, M. C., 506
Rydström, M. See von Schalien, R., 631

Sadana, A.
—; Protein Refolding and Inactivation During Bioseparation: Bioprocessing Implications, 481
Saksena, S. See van Eijndhoven, R. H. C. M., 406
Salmon, I. See Hooker, A. D., 639
Sapidou, E. See Petrides, D., 529
Sára, M. See Schuster, K. C., 66
Sawada, T.
—; Nakamura, Y.; Kobayashi, F.; Kuwahara, M.; Watanabe, T.: Effects of Fungal Pretreatment and Steam Explosion Pretreatment on Enzymatic Saccharification of Plant Biomass, 719
Saxén, B. See von Schalien, R., 631
Schöneich, C. See Li, S., 490
Schuster, K. C.
—; Mayer, H. F.; Kieweg, R.; Hampel, W. A.; Sára, M.: A Synthetic Medium for Continuous Culture of the S-Layer Carrying *Bacillus stearothermophilus* PV 72 and Studies on the Influence of Growth Conditions on Cell Wall Properties, 66
Scotti, C.
—; Hutchinson, C. R.: Immobilization and Properties of Carminomycin 4-*O*-methyltranferase, the Enzyme Which Catalyzes the Final Step in the Biosynthesis of Daunorubicin in *Streptomyces peucetius*, 133
Scotton, A. See Lombardo, S., 513
Shefer, S. D.
—; Rosenberger, V.; Vahanian, G.; Wong, W. T.; Langer, R.: Implantable Hollow Fiber Bioreactor as a Potential Treatment for Hypercholesterolemia: Characterization of the Catalytic Unit, 36
Shefter, E. See Manning, M. C., 506
Shen, H.
—; Wang, Y.-T.: Modeling Simultaneous Hexavalent Chromium Reduction and Phenol Degradation by a Defined Coculture of Bacteria, 606
Sherwood, C. S. See Haynes, C. A., 25
Shiloach, J. See Trinh, L., 401
—; See Tsai, A. M., 715
Shintaku, Y. See Naoe, K., 333
Shioya, S. See Omasa, T., 673
Signs, M. See Carlson, A., 303
Sipkema, E. M. See Martens, D. E., 49
Skeen, R. S.
—; Gao, J.; Hooker, B. S.: Kinetics of Chlorinated Ethylene Dehalogenation Under Methanogenic Conditions, 659
Smolders, G. J. F.
—; Klop, J. M.; van Loosdrecht, M. C. M.; Heijnen, J. J.: A Metabolic Model of the Biological Phosphorus Removal Process: I. Effect of the Sludge Retention Time, 222
—; Bulstra, D. J.; Jacobs, R.; van Loosdrecht, M. C. M.; Heijnen, J. J.: A Metabolic Model of the Biological Phosphorus Removal Process: II. Validation During Start-Up Conditions, 234
Soberón, X. See del Río, G., 141
Solà, C. See Montesinos, J. L., 573
Steidler, L.
—; Fiers, W.; Remaut, E.: Simultaneous Light Emission from Cloned *Vibrio fischeri lux* Genes and Expression of LamB or LamB–protein A Fusion Proteins in *Escherichia coli* Depends on Using a Single Chimeric Operon, 667
Stephenson, G. R. See Crooks, G. E., 78
—; See Crooks, G. E., 190
Stever, J.-P. See Buffière, P., 725

Strange, P. G. See Hooker, A. D., 639
Su, Z. See Charcosset, C., 415
Suga, K.-i. See Omasa, T., 673
Sugawara, T. See Ohtani, N., 42
Sundaresan, V.
—; Dhal, P. K.; Plunkett, S. D.; Arnold, F. H.: Selective Ligand-Exchange Adsorbents Prepared by Template Polymerization, 431
Suzuki, E. See Itoh, Y., 118
Svec, F.
—; Fréchet, J. M. J.: "Molded" Rods of Macroporous Polymer for Preparative Separations of Biological Products, 476
Svensson, M. See Crooks, G. E., 78
—; See Crooks, G. E., 190
Szarka, L. J. See Nanduri, V. B., 547

Tagliabue, A. See Maurizi, G., 197
Takezawa, T. See Yamazaki, M., 17
Talwar, G. P. See Mukhopadhyay, A., 158
Taylor, R. T. See Chen, C.-I., 614
Thim, L. See Mollerup, I., 501
Thomas, C. R. See Vanhoutte, B., 1
—; See Priede, M. A., 266
Thömmes, J.
—; Weiher, M.; Karau, A.; Kula, M.-R.: Hydrodynamics and Performance in Fluidized Bed Adsorption, 367
Thrift, J. C. See Ozturk, S. S., 201
Tramper, J. See Martens, D. E., 49
Trani, M. See Ducret, A., 214
Trinh, L.
—; Shiloach, J.: Recovery of Insect Cells Using Hollow Fiber Microfiltration, 401
Tsai, A. M.
—; Betenbaugh, M. J.; Shiloach, J.: The Kinetics of RCC1 Inclusion Body Formation in *Escherichia Coli*, 715
Tsuchida, M. See Yamazaki, M., 17
Tucker, K. G. See Priede, M. A., 266
Turner, R. F. B. See Haynes, C. A., 25
Tzeng, Y.-M. See Jong, J.-Z., 207

Ueda, H. See Itoh, Y., 118
Uemura, S.-i. See Omasa, T., 673
Ulisse, E. See Maurizi, G., 197

Vahanian, G. See Shefer, S. D., 36
Valero, F. See Montesinos, J. L., 573
van der Tweel, W. J. J. See van Tol, J. B. A., 179
van Eijndhoven, R. H. C. M.
—; Saksena, S.; Zydney, A. L.: Protein Fractionation Using Electrostatic Interactions in Membrane Filtration, 406
van Gulik, W. M.
—; Heijnen, J. J.: A Metabolic Network Stoichiometry Analysis of Microbial Growth and Product Formation, 681
van Loosdrecht, M. C. M. See Smolders, G. J. F., 222
—; See Smolders, G. J. F., 234
van Tol, J. B. A.
—; Jongejan, J. A.; Duine, J. A.; Kierkels, H. G. T.; Geladé, E. F. T.; Mosterd, F.; van der Tweel, W. J. J.; Kamphuis, J.: Thermodynamic and Kinetic Parameters of Lipase-Catalyzed Ester Hydrolysis in Biphasic Systems with Varying Organic Solvents, 179
Vanags, J. J. See Priede, M. A., 266
Vanhoutte, B.
—; Pons, M. N.; Thomas, C. R.; Louvel, L.; Vivier, H.: Characterization of *Penicillium chrysogenum* Physiology in Submerged Cultures by Color and Monochrome Image Analysis, 1
Viesturs, U. E. See Priede, M. A., 266
Vivier, H. See Vanhoutte, B., 1
von Schalien, R.
—; Fagervik, K.; Saxén, B.; Ringbom, K.; Rydström, M.: Adaptive On-line Model for Aerobic *Saccharomyces cerevisiae* Fermentation, 631
Vrkljan, M. See Manning, M. C., 506
Vunnum, S. See Kundu, A., 452

Walter, J.
—; Jördening, H.-J.: Kinetic Model of Disaccharide Oxidation by *Agrobacterium tumefaciens*, 12
Wang, D. I C. See Chang, Y.-H. D., 149
Wang, X. H. See Kwok, F., 542
Wang, Y.-T. See Shen, H., 606
Watanabe, T. See Sawada, T., 719
Weiher, M. See Thömmes, J., 367
Weimer, P. J.
—; Hackney, J. M.; French, A. D.: Effects of Chemical Treatments and Heating on the Crystallinity of Celluloses and Their Implications for Evaluating the Effect of Crystallinity on Cellulose Biodegradation, 169
White, E. T. See Judge, R. A., 316
Wiehl, P. E. See Gu, T., 520
Wong, W. T. See Shefer, S. D., 36
Wu, J.-H. See Anand, S., 89
Wu, W.-T. See Jong, J.-Z., 207

Yamamoto, S.
—; Plate Height Determination for Gradient Elution Chromatography of Proteins, 444
Yamazaki, M.
—; Tsuchida, M.; Kobayashi, K.-y.; Takezawa, T.; Mori, Y.: A Novel Method to Prepare Multiceliular Spheroids from Varied Cell Types, 17
Yang, S.
—; Lewandowski, Z.: Measurement of Local Mass Transfer Coefficient in Biofilms, 737
Yoshida, S. See Konishi, Y., 592

Zaidi, A.
—; Gainer, J. L.; Carta, G.: Fatty Acid Esterification Using Nylon-Immobilized Lipase, 601
Zheng, Y. See Gu, T., 520
Zydney, A. L. See van Eijndhoven, R. H. C. M., 406

Biotechnology and Bioengineering

Subject Index to Volume 48

α-amylase, 745
Acidianus brierleyi, 592
Acidophilic thermophile, 592
Activation, 501
Activity coefficient, 179
Adsorption, 367
Adsorption, heterogeneous, 437
Affinity chromatography, 278, 341
Affinity membranes, 415
Albumin, 406
Aliquat 336, 745
Amino acid, 452
Amino acids, 559
6-amino-penicillanic acid, 141
Ammonia conversion, 706
Anaerobic digestion, 725
Animal cell culture, 520
Antibody production rate, 673
Antibody productivity, 118, 699
Apoptosis, 49, 118
Aromatic hydrocarbon, 614

βhCG, 158
B. subtilis, 197
Baccatin III, 547
Bacillus stearothermophilus, 66
Bacillus thuringiensis, 207
Baker's yeast, 355
bcl-2, 118
Biocatalysis, 141
Biodegradation, 169, 614, 625
Biofilm, 737
Biofilms, 725
Bioleaching, 592
Biomass yield, 681
Biomimetic dye, 278
Bioreactor, 36
Bioseparation, 481
Biotic detoxification, 585
Biphasic system, 179
Bovine serum albumin, 673
BTEX, 614
Bulk crystallization, 316

Candida antarctica, 214
Candida boidinii, 278
Candida rugosa, 573
Candida utilis, 681
Carbon analysis, 513
Carbon dioxide, 123
Cation exchange systems, 452
C10-deacetylase, 547
Cell adhesion, 649
Cell cultures, 149
Cell cycle, 49
Cell density, 289
Cell disruption, 303
Cell lysis, 197
Cell survival, 118
Cellulose, 169
Chelator, 490
Chicken egg white, 333
Chimeric operon, 667
CHO cells, 639
Chromatography, 437, 461
Chromatography, displacement, 452
Chromium reduction, 606
Chromosome condensation protein, 715
Cleaning validation, 513
Cleavage, 501
Coculture, 606
Collagen, 17, 89
Colloidal suspension, 375
Concentration polarization, 375
Contaminant recovery, 513
Continuous medium, 476
Countercurrent gradient chromatography, 461
Crosslinkage, 17
Crystal growth rate, 316
Crystalline surface layers, 66
Crystallinity, 169

Daunorubicin biosynthesis, 133
10-Deacetylbaccatin III, 547
Dechlorination, 659
Dehydrogenases, 341
Denaturation, 506
Depressurization, 108
Diafiltration, 406
Differentiation, 1
Diffusion, 89
Disaccharide oxidation, 12
DNA purification, 25
DNA-binding fluorophore, 25
Dye–ligand, 341
Dye–ligand affinity purification, 355

Economic evaluation, 529
Electrostatic interactions, 406
Enzymatic hydrolysis, 551
Enzymatic reaction, 42
Enzymatic saccharification, 719
Enzyme immobilization, 133, 585, 601
Enzyme kinetics, 133
Enzyme purification, 278
Escherichi coli, 149
Escherichia coli, 303, 606, 667, 715
Esterification, 78, 190, 601
Ethylene, 123, 659
Expanded bed, 341
Expanded beds, 355
Extraction, 333

Fatty acid, 601
Fermentation, 12, 547, 573, 631
Fibrin, 89
Filamentous Fermentation Broths, 257
Filtration, 386
Fluidization, 367
Fluorescent ligand, 25
Formate dehydrogenase, 278
Fouling, 108, 375
Fungal treatment, 719
Fusarium moniliforme, 266

Glucose, 207
Glutamic acid fermentation, 551
Glycosylation, 639
G6PDH, 355
Gradient elution, 444
Gradient surface, 17
Growth factor, 673
Growth rate, 289
Guanidine hydrochloride, 333

Hemoglobin, 406
Hexopyranoside:cytochrome c oxidoreductase, 12
Hollow fiber, 36, 401
Hollow-fiber culture, 673
Human growth hormone, 520
Human insulin, biosynthetic process design, 529
Human serum albumin, 461
Humicola lanuginosa, 78, 190
Hybrid strain, 625
Hybridoma, 49, 118, 289, 699
Hydraulic resistance, 108
Hydrodynamics, 266, 367
Hydrolysis, 78, 179, 190
Hyperosmotic stress, 699

IgG, 415
IgG-binding protein A domains, 667
Image analysis, 1, 266
Immobilization, 699
Immobilized enzymes, 36
Immunoadsorption, 415
Immunological and biological activity, 158
Inclusion body, 715
Inositol monophosphatase, 542
Insect cells, 401
Insulin, 529
Interfacial tension, 649
Interferon, 639
Ion exchange, 559
Ion-exchange chromatography, 444
Ion-exchange resin column, 551

Kinetic data analysis, 706
Kinetic energy, 266
Kinetic model, 12
Kinetics, 501

LamB fusions, 667
Light emission, 667
Lipase, 214, 573, 601
Liquid chromatography, 476
Lithium, 542
Low density lipoprotein, 36
Lysozyme, 333

Macroporous polymer, 476
Mammalian cell culture fermentation, 201
Mass spectrometry, 639
Mass transfer, 149
Mass transfer coefficient, 737
Membrane filtration, 406

Membrane microfiltration, 375
Metabolic fluxes, 681
Metabolic model, 222, 234
Metabolism, 614
Metal affinity, 324
Metal affinity chromatography, 437
Metal catalysis, 490
Metal recovery, 592
Metal–ligand coordination, 431
Methanogenic activity, 659
Microcalorimetry, 559
Microelectrode, 737
Microencapsulation, 706
Microfiltration, 108, 386, 401
Microheterogeneity, 639
Mixing, 324
Modeling, 573
MOI, 158
Molded column, 476
Molecular imprinting, 431
Molecular recognition, 431
Monoclonal antibodies, 201
Monoclonal antibody, 289
Morphology, 257, 266
mRNA, 158

Neutralized supports, 42
n-hexane, 601
Nitrobenzene, 625
Nocardioides luteus, 547
Nonaqueous media, 214
Nucleation, 316

On-line simulation, 631
Organic gels, 585
Organic solvents, 179
Ovalbumin, 316
Oxidation, 12, 490
Oxygen, 123

Penicillium chrysogenum, 1
Peptide, 490
Perfluoropolymers, 341
Perfusion, 289
Perfusion culture, 673
Phase separation, 246
PHB, 234
PHB, glycogen, 222
Phenoloxidases, 585
Phosphate, 246
Phospholipase A_2, 36
Phosphorus removal, biological, 222, 234
Photooxidation, 490
Physiology, 1
Plant biomass, 719
Plasma fractionation, 324
Plasmid recovery, 303
Plasminogen, 89
Polyethylene glycol, 246
Polymer, temperature-responsive, 17
Polyphosphate, 222, 234
Polystyrene-immobilized α-chymotrypsin, 42
Porosity, 36
Preparative HPLC, 476
Preparative separation, 444
Procion red H-E7B, 355
Product recovery, 551
Product yield, 681
Protein, 490
Protein A, 415
Protein binding, 437
Protein precipitation, 324
Protein purification, 367, 452
Protein refolding, 481
Protein separation, 444, 461
Protein separations, 406
Protein stability, 141
Protein stabilization, 506
Protein surface charge, 141
Proteins, 476
Proteolysis, 89
Pseudomonas putida, 606
Purification, 316, 520, 542, 745
Pyrite, 592

Recombinant protein purification, 197
Reverse micelle, 333
Reverse micelles, 481, 585
Reversed micelles, 745
rFVIIa, 501
Rheology, 257
Rhizomucor miehei, 78, 190
RP-HPLC, 501

Saccharomyces cerevisiae, 386, 631, 681
Secondary metabolite, 123
Self-cleaning spiral vortices, 375
Serum, 520
Solvation, 179
Spheroid, 17
Sporulation, 197
Start-up, 234
State estimation, 631
Steam explosion, 719
Stirred bioreactor, 266
Stoichiometry, 681
STREAMLINE red H-E7B, 355
Streptomyces peucetius, 133
Structured modeling, 573
Sugar esters, 214
Surface modification, 431
Synthetic medium, 66

Taxol, 123
Taxus cuspidata, 123
Thermodynamic model, 649
Thermodynamics, 559
Thermophile, 614
Thermus, 614
Thuringiensin production, 207
Toluene, 42
Transesterification, 42
Triazine dye, 278
Tyrosine phenol-lyase, 706
Tyrosine production, 706

Urokinase, 506

Vaccinia virus expression, 158
Vero, 158
Vibrio fischeri lux genes, 667

Wastewater treatment, 725

x-ray diffraction, 169

Yeast, 108, 375, 386
Yield stress, 257